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TRANSMITTAL FORM	Application Number	10,665,343	
	Filing Date	September 18, 2003	
	First Named Inventor	Diehl et al.	
	Art Unit	1616	
	Examiner Name	Sabliha Naim Qazi	
(to be used for all correspondence after initial filing)		Attorney Docket Number	A01341-U6-3
Total Number of Pages in This Submission			

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Rohm and Haas Company		
Signature			
Printed name	Marcella M. Bodner		
Date	October 15, 2007	Reg. No.	46,561

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Typed or printed name	Janice Soulas	Date	October 15, 2007

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FEE TRANSMITTAL For FY 2007

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 500.00

Complete if Known

Application Number 10/665,343
Filing Date September 18, 2003
First Named Inventor Diehl et al.
Examiner Name Sabiha Naim Qazi
Art Unit 1616
Attorney Docket No. A01341-US-3

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify):

☒ Deposit Account Deposit Account Number: 18-1850 Deposit Account Name: Rohm and Haas Company

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description

Each claim over 20 (including Reissues)

Fee (\$)
50

Small Entity Fee (\$)
25

Each independent claim over 3 (including Reissues)

200

100

Multiple dependent claims

360

180

Total Claims Extra Claims Fee (\$)
- 20 or HP = x =

Multiple Dependent Claims Fee (\$)
Fee Paid (\$)

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims Extra Claims Fee (\$)
- 3 or HP = x =

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets Extra Sheets Number of each additional 50 or fraction thereof Fee (\$)
- 100 = / 50 = (round up to a whole number) x = Fee Paid (\$)

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Fees Paid (\$)

Other (e.g., late filing surcharge): Appeal Brief

500.00

SUBMITTED BY

Signature

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Name (Print/Type) Marcella M. Bodner

Date October 15, 2007

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GROUP ART UNIT: 1616

APPEAL NO. _____

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES**

APPEAL BRIEF

In re the Application of Megan Anne Diehl et al.

Filed: September 18, 2003

Serial No. 10/665,343

For: SYNERGISTIC MICROBICIDAL COMBINATIONS

Kenneth Crimaldi
Attorney for Appellants

Sabiha Naim Qazi
Examiner

Enclosed:
Transmittal Form

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Megan Anne Diehl et al.:

Application No.: 10/665,343

Group No.: 1616

Filed: September 18, 2003

Examiner: Sabiha Naim Qazi

For: SYNERGISTIC MICROBICIDAL COMBINATIONS

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

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APPEAL BRIEF

This is an appeal from the rejection dated June 11, 2007 finally rejecting claims 1, 3 and 7-12. The rejected claims are set out in Appendix J. Appellants filed a Notice of Appeal pursuant to 37 C.F.R. § 1.191 on September 6, 2007.

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(C) Real Party In Interest

The owner of the present application and the invention contained therein is
ROHM AND HAAS COMPANY.

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(D) Related Appeals, Interferences or Judicial Proceedings

No appeals, interferences or judicial proceedings are known to Appellants, the Appellants' legal representative, or the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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(E) Status Of Claims

The status of the claims is as follows:

Claims pending: 1, 3 and 7-12

Allowed claims: none

Claims objected to: none

Claims canceled: 2 and 4-6

Claims rejected: 1, 3 and 7-12

Claims on appeal: 1, 3 and 7-12

Claims withdrawn from consideration by the Examiner: none.

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(F) Status Of Amendments

Appellants have not filed an amendment after final rejection in the present application.

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(G) Summary of Claimed Subject Matter

Claim 1: The present invention provides a microbicidal composition comprising a synergistic mixture, the first component of which is 2-methyl-3-isothiazolone, and the second component of which is one or more commercial microbicides selected from the group consisting of benzoic acid, sorbic acid, 1,2-dibromo-2,4-dicyanobutane, 1,3 dimethylol-5,5-dimethylhydantoin, phenoxyethanol, zinc pyrithione and climbazole [page 2, lines 1-5]; wherein a ratio of 2-methyl-3-isothiazolone to benzoic acid is from 1/0.13 to 1/67 [page 8, lines 3-5], a ratio of 2-methyl-3-isothiazolone to sorbic acid is from 1/4 to 1/133 [page 8, lines 7-9], a ratio of 2-methyl-3-isothiazolone to 1,2-dibromo-2,4-dicyanobutane is from 1/0.4 to 1/100 [page 8, lines 9-11], a ratio of 2-methyl-3-isothiazolone to 1,3 dimethylol-5,5-dimethylhydantoin is from 1/0.06 to 1/80 [page 8, lines 11-14], a ratio of 2-methyl-3-isothiazolone to phenoxyethanol is from 1/2 to 1/800 [page 8, lines 14-16], a ratio of 2-methyl-3-isothiazolone to zinc pyrithione is from 1/0.0013 to 1/13 [page 8, lines 16-18], and a ratio of 2-methyl-3-isothiazolone to climbazole is from 1/0.05 to 1/24 [page 8, lines 18-20]; and wherein the composition is substantially free of halogenated 3 isothiazolone [page 2, lines 6-7].

Claim 9: The present invention further provides a microbicidal composition comprising a synergistic mixture, the first component of which is 2-methyl-3-isothiazolone, and the second component of which is one or more commercial microbicides selected from the group consisting of citric acid and benzyl alcohol; wherein the ratio of the first component to the second component is from 1/8 to 1/24 when the second component is citric acid; wherein the ratio of the first component to the second component is from 1/0.13 to 1/32 or from 1/80 to 1/1600 when the second component is benzyl alcohol; and wherein the composition is substantially free of halogenated 3 isothiazolone [page 2, lines 8-15].

Claim 10: The present invention further provides a method of inhibiting the growth of microorganisms in a locus comprising introducing to, at or on, the locus a

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microorganism inhibiting amount of a synergistic mixture [page 2, lines 16-18] the first component of which is 2-methyl-3-isothiazolone, and the second component of which is one or more commercial microbicides selected from the group consisting of benzoic acid, sorbic acid, 1,2-dibromo-2,4-dicyanobutane, 1,3 dimethylol-5,5-dimethylhydantoin, phenoxyethanol, zinc pyrithione and climbazole [page 2, lines 2-5]; wherein a ratio of 2-methyl-3-isothiazolone to benzoic acid is from 1/0.13 to 1/67 [page 8, lines 3-5], a ratio of 2-methyl-3-isothiazolone to sorbic acid is from 1/4 to 1/133 [page 8, lines 7-9], a ratio of 2-methyl-3-isothiazolone to 1,2-dibromo-2,4-dicyanobutane is from 1/0.4 to 1/100 [page 8, lines 9-11], a ratio of 2-methyl-3-isothiazolone to 1,3 dimethylol-5,5-dimethylhydantoin is from 1/0.06 to 1/80 [page 8, lines 11-14], a ratio of 2-methyl-3-isothiazolone to phenoxyethanol is from 1/2 to 1/800 [page 8, lines 14-16], a ratio of 2-methyl-3-isothiazolone to zinc pyrithione is from 1/0.0013 to 1/13 [page 8, lines 16-18], and a ratio of 2-methyl-3-isothiazolone to climbazole is from 1/0.05 to 1/24 [page 8, lines 18-20]; and wherein the composition is substantially free of halogenated 3 isothiazolone [page 2, lines 6-7]; and wherein the amount of synergistic mixture is from 0.1 to 10,000 parts per million active ingredient [page 2, lines 18-19].

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(H) Grounds of Rejection to be Reviewed on Appeal

Claims 1, 3 and 7-12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. 6,361,788 to Antoni-Zimmerman et al. ("Antoni-Zimmerman").

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(I) Argument

Regarding whether or not claims 1, 3 and 7-12 are unpatentable over U.S. 6,361,788 to Antoni-Zimmerman et al. ("Antoni-Zimmerman"):

A finding of obviousness may be rebutted by demonstrating unexpected results relative to the prior art disclosure. See *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990); M.P.E.P. § 2144.05(III). Synergistic interaction between molecules always is unexpected, and neither its existence nor the composition ranges over which two molecules will exhibit synergistic interaction can be predicted. Antoni-Zimmerman does not demonstrate that the combinations claimed by Appellants are synergistic at any ratio. Accordingly, there is no reason that one skilled in the art would expect a synergistic interaction between Appellants' claimed biocides at any ratio. Appellants have demonstrated (see pages 10-21) that their claimed biocide combinations display synergistic activity (synergy index < 1) within the claimed ranges of biocide ratios, and accordingly, they have demonstrated unexpected results for these biocide combinations. Therefore, the claims cannot be obvious over the disclosure of Antoni-Zimmerman.

The final Office Action appears to rely on *Ex parte Quadranti*, 1992 Pat. App. LEXIS 26 (B.P.A.I. 1992) to argue that synergy is not unexpected. However, there are important differences between the factual situation in *Quadranti* and that in the present application. In *Quadranti*, the Board objected to the Colby equation used to demonstrate synergy, stating that it was not considered valid by workers in the field. *Id.* at *2-*3. Here, Appellants are relying on the Synergy Index (SI) described by Kull, F.C.; Eisman, P.C.; Sylwestrowicz, H.D. and Mayer, R.L., in *Applied Microbiology* 9:538-541 (1961), an accepted method for determining synergy, as stated on page 9 of the present application. In *Quadranti*, the Board also stated that "[t]he Colby equation inherently results in an expectation of a less than additive effect for any combination." *Quadranti* at *2. This is not true of the method of Kull et al. used by Appellants, as evidenced by the ratios at which additive behavior or even antagonism is observed (see pages 10-21).

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The Board in *Quadranti* also objected to the fact that the data presented did not show very good effectiveness. *Id.* at *5. In the present application, the SI values are calculated from minimum inhibitory concentration (MIC) of each component, which “is the concentration tested under a specific set of conditions that prevents the growth of added microorganisms” (see page 9, lines 19-20). Therefore, each SI represents a combination of biocides that actually prevents growth of microorganisms.

The final Office Action objects to the fact that the claims are not limited to the organisms for which synergy is demonstrated. However, claims 1, 3, 7-9 and 11-12 are directed to compositions. A showing of unexpected results for a composition refutes a finding of obviousness, and does not require demonstrating that the unexpected results would be obtained for every possible measurement of the composition’s properties under every possible set of conditions. This would be impossible to prove, and to Appellants’ knowledge, has never been required. See, e.g., *In re Chupp*, 816 F.2d 643, 646 (Fed. Cir. 1987); M.P.E.P. § 716.02(a)(II). Method claim 10 recites the use of synergistic ratios of biocides to “inhibit[] the growth of microorganisms.” The claimed combinations have been shown to provide unexpected results in accomplishing this. Here too, Appellants are unaware of any requirement that a method must provide unexpected results under every possible set of conditions. Moreover, the patentability of the recited biocide combinations, as argued above, imparts patentability to any method using these combinations. Therefore, Appellants respectfully submit that their demonstration of unexpected results overcomes any finding of obviousness and that the rejection should be withdrawn.

The final Office Action also cites *In re Shokal*, 242 F.2d 771 (C.C.P.A. 1957) for the proposition that a “single species is seldom, if ever, sufficient to support a generic claim.” The issue in *In re Shokal* was whether the disclosure of several species in an earlier case supported a compound claim in a later case to a genus defined only in the later case. *Id.* at 773. Here, Appellants are claiming only species consisting of specific

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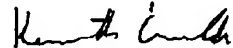
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biocide combinations, and therefore respectfully submit that *In re Shokal* is not relevant to the present application.

CONCLUSION

Based on the foregoing, Appellants respectfully submit that the pending claims are currently in condition for allowance. Appellants respectfully request the Board to pass the pending claims to allowance. Enclosed herewith, Appellants have filed a Certificate of Mailing to establish the timely filing of this Appeal Brief. The Commissioner is hereby authorized to charge any additional fee which may be required, or to credit any overpayments to Deposit Account 18-1850.

Respectfully submitted,



Kenneth Crimaldi
Attorney for Appellants
Registration No. 40,968

ROHM AND HAAS COMPANY
100 Independence Mall West
Philadelphia, PA 19106-2399
October 9, 2007

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(J) Claims Appendix

1. A microbicidal composition comprising a synergistic mixture, the first component of which is 2-methyl-3-isothiazolone, and the second component of which is one or more commercial microbicides selected from the group consisting of benzoic acid, sorbic acid, 1,2-dibromo-2,4-dicyanobutane, 1,3 dimethylol-5,5-dimethylhydantoin, phenoxyethanol, zinc pyrithione and climbazole; wherein a ratio of 2-methyl-3-isothiazolone to benzoic acid is from 1/0.13 to 1/67, a ratio of 2-methyl-3-isothiazolone to sorbic acid is from 1/4 to 1/133, a ratio of 2-methyl-3-isothiazolone to 1,2-dibromo-2,4-dicyanobutane is from 1/0.4 to 1/100, a ratio of 2-methyl-3-isothiazolone to 1,3 dimethylol-5,5-dimethylhydantoin is from 1/0.06 to 1/80, a ratio of 2-methyl-3-isothiazolone to phenoxyethanol is from 1/2 to 1/800, a ratio of 2-methyl-3-isothiazolone to zinc pyrithione is from 1/0.0013 to 1/13, and a ratio of 2-methyl-3-isothiazolone to climbazole is from 1/0.05 to 1/24; and wherein the composition is substantially free of halogenated 3 isothiazolone.

3. The composition of claim 1 wherein the second component comprises sorbic acid and the ratio of 2-methyl-3-isothiazolone to sorbic acid is from 1/4 to 1/67.

7. The composition of claim 1 wherein the second component comprises zinc pyrithione and the ratio of 2-methyl-3-isothiazolone to zinc pyrithione is from 1/0.0013 to 1/13.

8. The composition of claim 1 wherein the second component comprises climbazole and the ratio of 2-methyl-3-isothiazolone to climbazole is from 1/0.05 to 1/24.

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9. A microbicidal composition comprising a synergistic mixture, the first component of which is 2-methyl-3-isothiazolone, and the second component of which is one or more commercial microbicides selected from the group consisting of citric acid and benzyl alcohol; wherein the ratio of the first component to the second component is from 1/8 to 1/24 when the second component is citric acid; wherein the ratio of the first component to the second component is from 1/0.13 to 1/32 or from 1/80 to 1/1600 when the second component is benzyl alcohol; and wherein the composition is substantially free of halogenated 3 isothiazolone.

10. A method of inhibiting the growth of microorganisms in a locus comprising introducing to, at or on, the locus a microorganism inhibiting amount of a synergistic mixture the first component of which is 2-methyl-3-isothiazolone, and the second component of which is one or more commercial microbicides selected from the group consisting of benzoic acid, sorbic acid, 1,2-dibromo-2,4-dicyanobutane, 1,3 dimethylol-5,5-dimethylhydantoin, phenoxyethanol, zinc pyrithione and climbazole; wherein a ratio of 2-methyl-3-isothiazolone to benzoic acid is from 1/0.13 to 1/67, a ratio of 2-methyl-3-isothiazolone to sorbic acid is from 1/4 to 1/133, a ratio of 2-methyl-3-isothiazolone to 1,2-dibromo-2,4-dicyanobutane is from 1/0.4 to 1/100, a ratio of 2-methyl-3-isothiazolone to 1,3 dimethylol-5,5-dimethylhydantoin is from 1/0.06 to 1/80, a ratio of 2-methyl-3-isothiazolone to phenoxyethanol is from 1/2 to 1/800, a ratio of 2-methyl-3-isothiazolone to zinc pyrithione is from 1/0.0013 to 1/13, and a ratio of 2-methyl-3-isothiazolone to climbazole is from 1/0.05 to 1/24; and wherein the composition is substantially free of halogenated 3 isothiazolone; and wherein the amount of synergistic mixture is from 0.1 to 10,000 parts per million active ingredient.

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11. The composition of claim 9 wherein the second component comprises citric acid and a ratio of 2-methyl-3-isothiazolone to citric acid is from 1/8 to 1/24.

12. The composition of claim 9 wherein the second component comprises benzyl alcohol and a ratio of 2-methyl-3-isothiazolone to benzyl alcohol is from 1/80 to 1/400.

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(K) Evidence Appendix

No evidence was submitted during prosecution.

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(L) Related Proceedings Appendix

There are no related proceedings.

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